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1995 Feature Article - Review of the Experimental Composite Leading Indicator: The Housing Finance Component

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Updates of the ABS's experimental Composite Leading Indicator (CLI) have been published in Australian Economic Indicators each quarter since the September 1993 issue (which contains the June quarter 1993 CLI update). During 1994-95, the ABS has reviewed both the construction and the presentation of the CLI. First, the analysis of how the eight component indicators affect movements in the composite indicator has been expanded; the more detailed analysis has been included in quarterly CLI updates since the September quarter 1994 update. Second, the methods used to extract the business cycle elements of the reference series, GDP(A), and of the eight component indicators have been reviewed; the results of this work were reported in the article *Sifting the Signals from the Noise* (see, Australian Economic Indicators, June 1995). Third, the methods used to derive some of the eight component indicators have been overhauled.

This article reports the effect of using an alternative deflator in the derivation of the real secured housing finance commitments component (abbreviated to "housing finance" or "housing finance approvals" in the remainder of the article). The existing deflator (Consumer Price Index (CPI), housing group) has the virtue of timeliness but is inferior to some alternatives in terms of economic relevance and coverage. One alternative considered (the implicit price deflator (IPD) for private gross fixed capital expenditure on dwellings, published as part of the Australian National Accounts) appears superior in terms of economic relevance and coverage but is less timely. Although the existing and alternative deflator series have exhibited rather different patterns of movements from the late 1980s, altering the construction of the housing finance series has only a small effect on the CLI. Thus the existing and alternative versions of the housing finance component exhibit much the same pattern of lead on the reference cycle, real GDP(A). This reflects the facts that the CLI is an aggregate of several components and that only the "business cycle" elements of each component (the deviation of their short-term trends from their historical long-term trends) enter the construction of the composite indicators.

BACKGROUND

The CLI is a single time series produced by aggregating eight individual leading economic indicators. It is designed to help in detecting the turning points between successive expansions and contractions of overall economic activity. Aggregating individual indicators improves predictive power; because the CLI is a summary of the early signals contained in multiple indicators, it is more likely to capture future fluctuations than any component used alone, and to be robust against false signals (Salou and Kim, 1993).

The eight component indicators were selected for inclusion in the CLI according to three criteria:

- economic relevance and coverage,

- cyclical conformity with the reference series, GDP(A), and
- timeliness.

THE HOUSING FINANCE COMPONENT

Given the three criteria, it is clear that some indicator of activity in the housing sector should be included in the CLI:

1. Economic relevance and coverage - house building is an important component of general economic activity, both directly and because of flow-ons to demand for, say, building materials and household durables and furnishings.

2. Cyclical conformity - peaks and troughs in the housing sector have generally led the peaks and troughs in the business cycle during the past few decades, with an average lead time of two quarters; moreover, among the indicators for the housing industry, the housing finance approvals series exhibited one of the longest and most stable lead times (Salou and Kim, 1992).

3. Timeliness - data on housing finance approvals are available approximately seven weeks after the reference period (footnote 1).

THE NEED FOR A CONSTANT PRICE INDICATOR

The reference series for the CLI is real output (constant price GDP(A)). Real activity in the housing sector exhibits a more direct and more stable relationship to real GDP(A) than does nominal (current price) activity. In particular, the effect of a change in the nominal value of secured housing finance approvals depends partly on price movements: growth in the nominal value of housing finance, greater than growth in building prices, may lead a rise in real building and economy-wide activity; however, growth in the nominal value of housing finance approvals, less than growth in building prices, may lead a fall in real building and economy-wide activity. Hence, the CLI component for the housing sector should be based on a constant price measure of housing finance approvals.

EXISTING DERIVATION OF THE COMPONENT

At present the housing finance component of the CLI is derived as:

The value of total secured housing finance commitments (footnote 2) to individuals, deflated (divided) by the housing group of the Consumer Price Index (CPI).

The CPI-based deflation method used at present is weak when assessed against the first criterion (economic relevance and coverage) especially when one considers the coverage of the deflator series vis-a-vis the numerator series. As can be seen from Table 1, the CPI housing group includes components not directly related to building activity. For example, a large weight (41.6 per cent) is given to mortgage interest charges (footnote 3). It might be argued, of course, that interest rate movements are an important leading indicator; but they are already represented directly in the CLI through another of the eight components (the real short-term interest rate (lagged four quarters)) (footnote 4).

TABLE 1. PERCENTAGE CONTRIBUTION TO THE CONSUMER PRICE INDEX HOUSING GROUP

Sub-group, Expenditure class	Per cent
Rents	
Privately-owned dwelling rents	28.2
Government-owned dwelling rents	2.4
Rents sub-group total	30.6
Home ownership	
Mortgage interest charges	41.6
Local government rates and charges	13.8
House repairs and maintenance	11.5
House insurance	2.6
Home ownership sub-group total	69.4
Total Housing Group	100.0

The CPI-based deflation method is strong when assessed against the third criterion (timeliness); the Consumer Price Index publication (ABS Cat. No. 6401.0) is available less than one month after the reference period. Thus, using this deflator does not delay the compilation of quarterly CLI updates.

AN ALTERNATIVE DEFLATION METHOD

A price deflator for real secured housing finance commitments which is stronger against the first (economic relevance and coverage) criterion and provides a better match between the deflator and the numerator series, is published as part of the Australian national accounts, viz:

The implicit price deflator (IPD) (footnote 5) for private gross fixed capital expenditure on dwellings (abbreviated to “national accounts deflator” or “national accounts IPD” in the remainder of the article).

The content and coverage of this alternative deflator reflect price movements more directly related to building activity (footnote 6).

However, this alternative deflator is weaker when assessed against the third (timeliness) criterion; the quarterly national accounts are generally released around two months after the reference period (footnote 7).

The CLI has been designed as a forecasting tool. Unlike the CLIs compiled by some other national and international statistical agencies, the ABS’s CLI is released only when updates of all eight component indicators are completed; thus, the timeliness of the CLI depends on the timeliness of the last component available. At present, the housing finance series is the last component of the CLI to become available (approximately seven weeks after the reference period). If the national accounts deflator were to be used instead of the CPI-based deflator, the release of the CLI would be delayed.

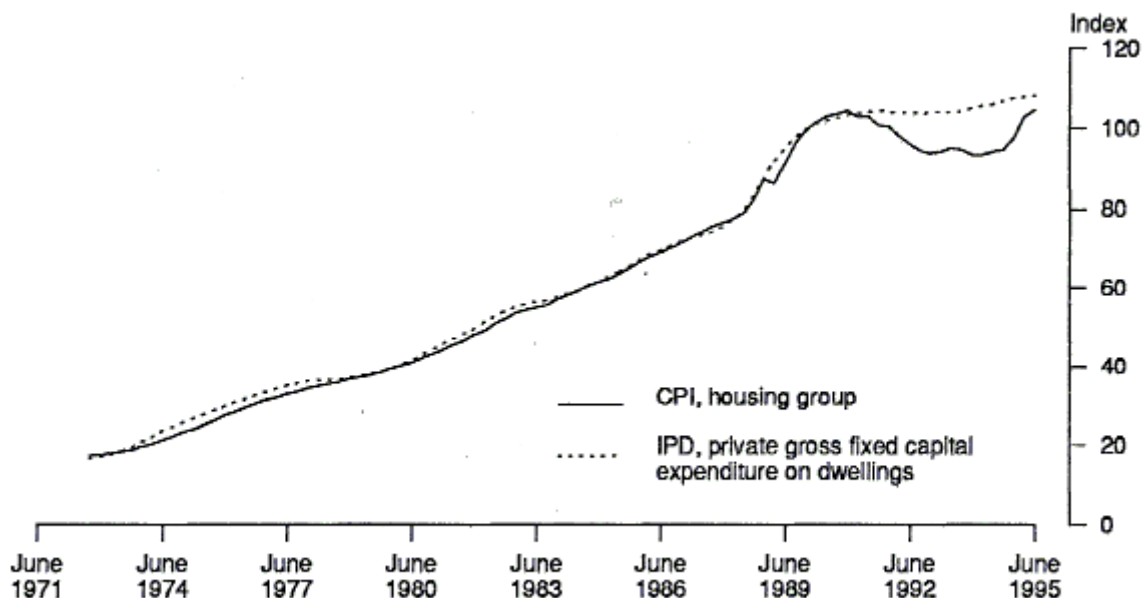
COMPARISON OF THE TWO DEFLATION METHODS

Index levels

The index numbers of the two deflators, that is in level form, were similar from the early 1970s to the late 1980s (Graph 1). In the March quarter 1989, following strong growth and similar levels in both indexes, the CPI housing group fell 1.0 per cent (mainly due to a change in the treatment of mortgage interest charges, see Mortgage interest charges effect, below) while the national accounts IPD continued to grow strongly (up 4.8 per cent). Following stronger growth in the CPI

housing group, index levels were again similar from the December quarter 1989 to the September quarter 1990. However, from the December quarter 1990, the paths diverged markedly; between the December quarter 1990 and the December quarter 1993, the CPI housing group fell 10.4 per cent (from 104.5 to 93.6) while the national accounts IPD rose 1.5 per cent (from 103.5 to 105.1). Their paths have generally been converging since the December quarter 1993 (CPI housing group growing at a faster rate than the national accounts IPD).

GRAPH 1: PRICE DEFLATORS - HOUSING FINANCE: 1989-90 = 100.0

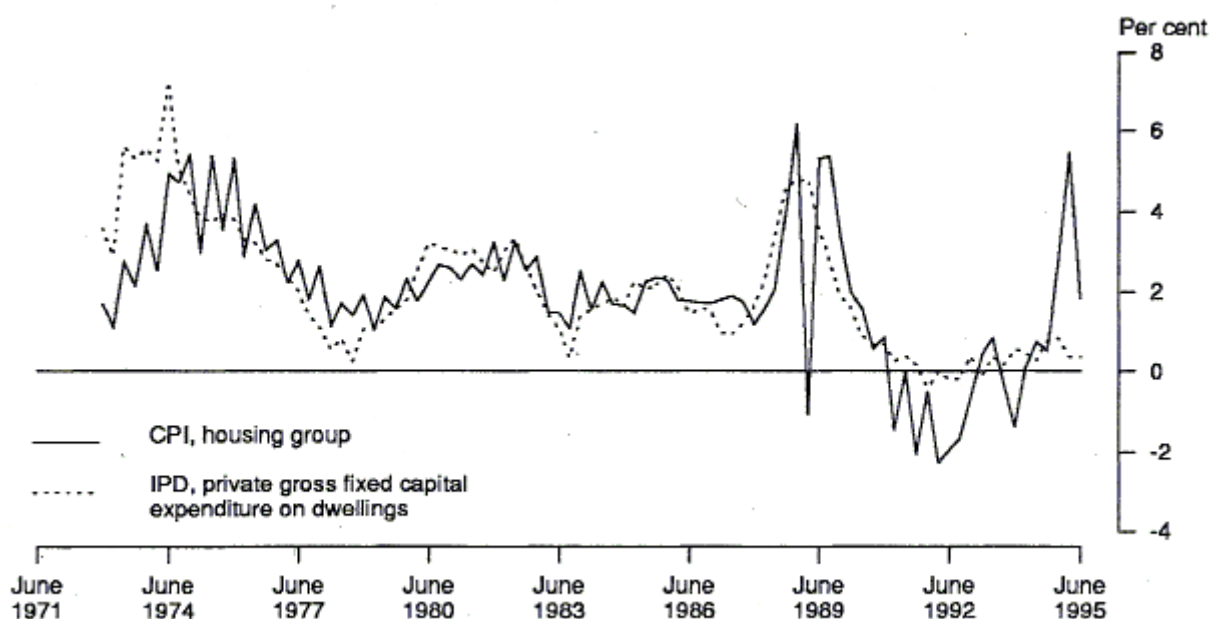


Source: ABS 6401.0, 5206.0 Quarterly data

Index growth rates

Graph 2 (where the two deflators are expressed in terms of the change from the previous quarter) highlights the greater variability of the CPI housing group index compared with the national accounts IPD, and again shows their divergent paths from the late 1980's.

**GRAPH 2: PRICE DEFLATORS - HOUSING FINANCE
CHANGE FROM PREVIOUS QUARTER**

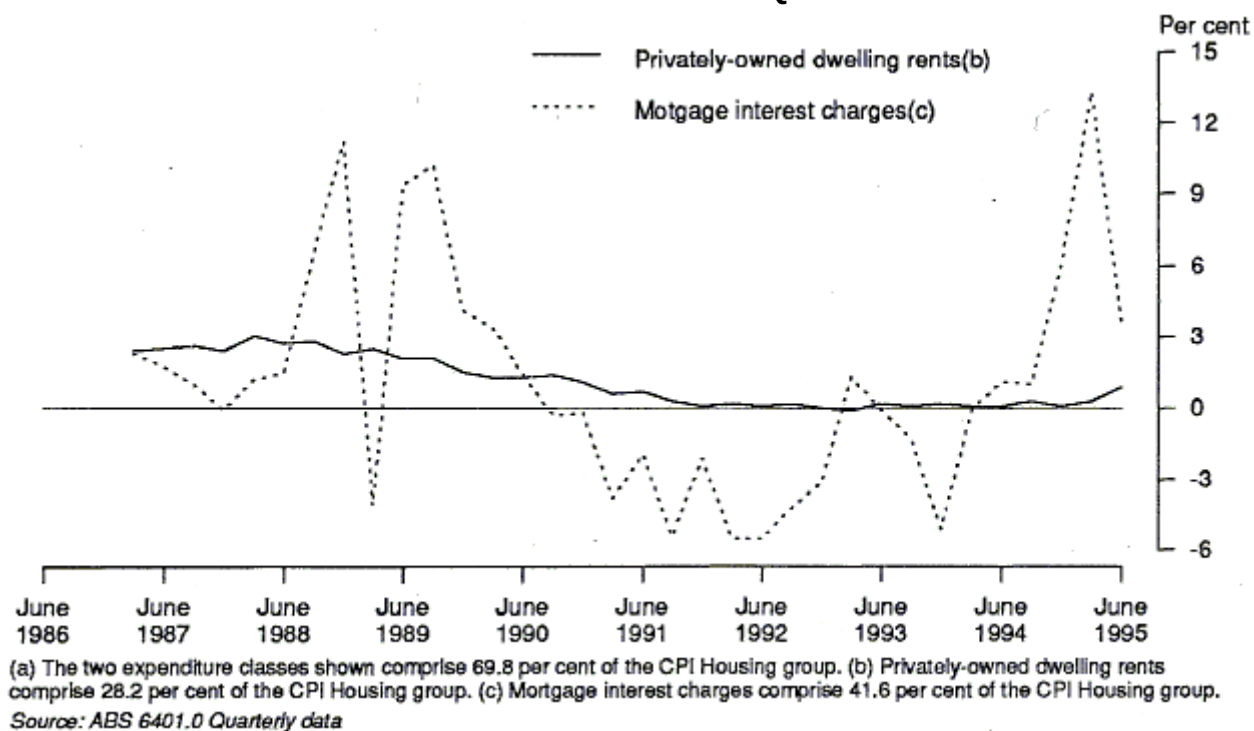


Source: ABS 6401.0, 5206.0 Quarterly data

Mortgage interest charges effect

The major components of the CPI housing group are mortgage interest charges and privately-owned dwelling rents (accounting for 41.6 per cent and 28.2 per cent of the group respectively, see Table 1). Graph 3 shows the change from the previous quarter in these major components. The fall in the CPI housing group in the March quarter 1989 (Graphs 1 and 2) reflects a large fall in the mortgage interest charge component in the same period (Graph 3). A change in the treatment of mortgage interest charges from the March quarter 1989 caused this fall (footnote 8). The divergent paths of the CPI housing group and national accounts IPD, from the December quarter 1990 (Graph 1), reflects the negative growth in mortgage interest charges over this period (Graph 3) (footnote 9).

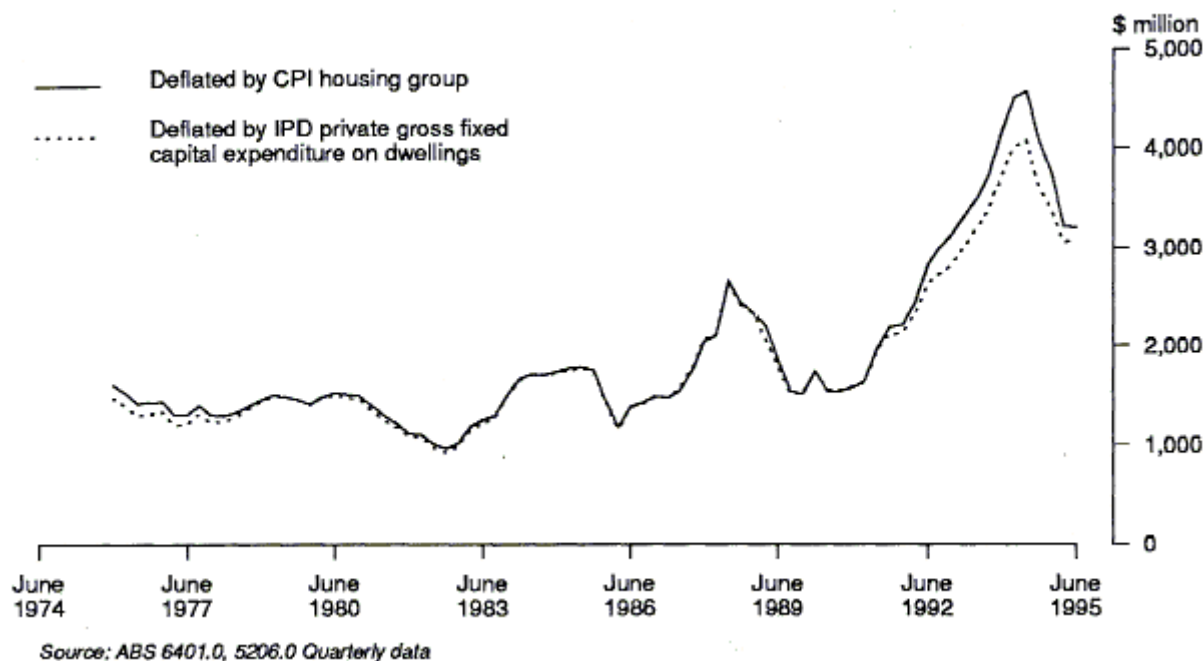
**GRAPH 3: CPI HOUSING GROUP, SELECTED EXPENDITURE CLASSES (a)
CHANGE FROM PREVIOUS QUARTER**



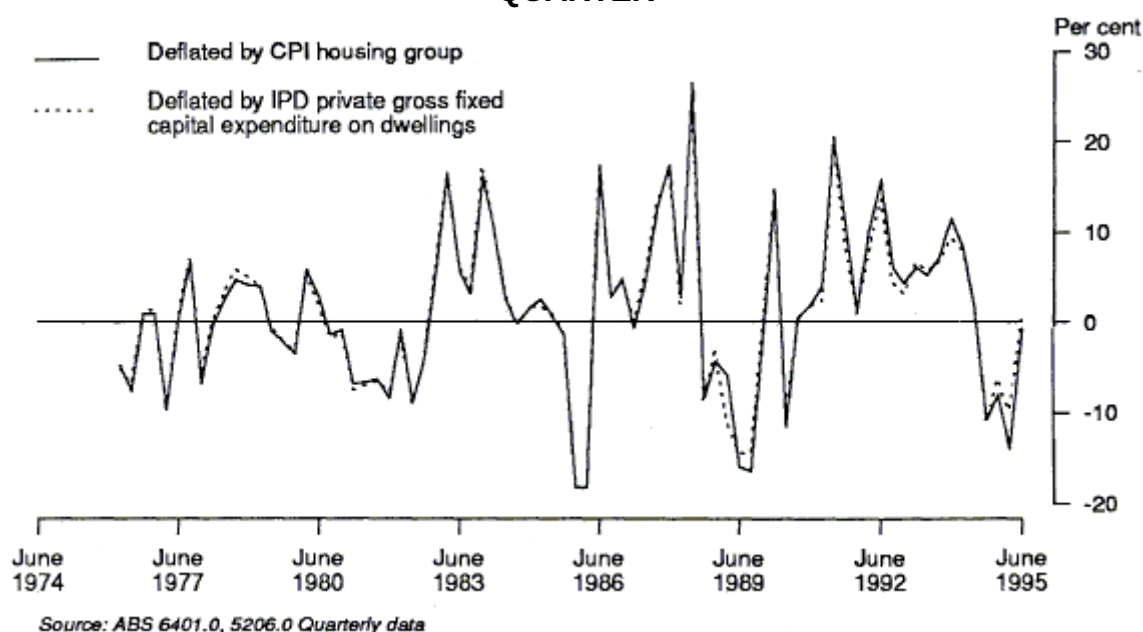
Real housing finance approvals

When nominal housing finance approvals are divided by the two deflators, the resulting two constant price series in part reflect (inversely) the levels and movements in the respective deflators. Graph 4 shows the level of the two constant price series, while Graph 5 shows their change from previous quarter.

**GRAPH 4: REAL SELECTED HOUSING FINANCE COMMITMENTS,
SEASONALLY ADJUSTED AT AVERAGE 1989-90 PRICES**



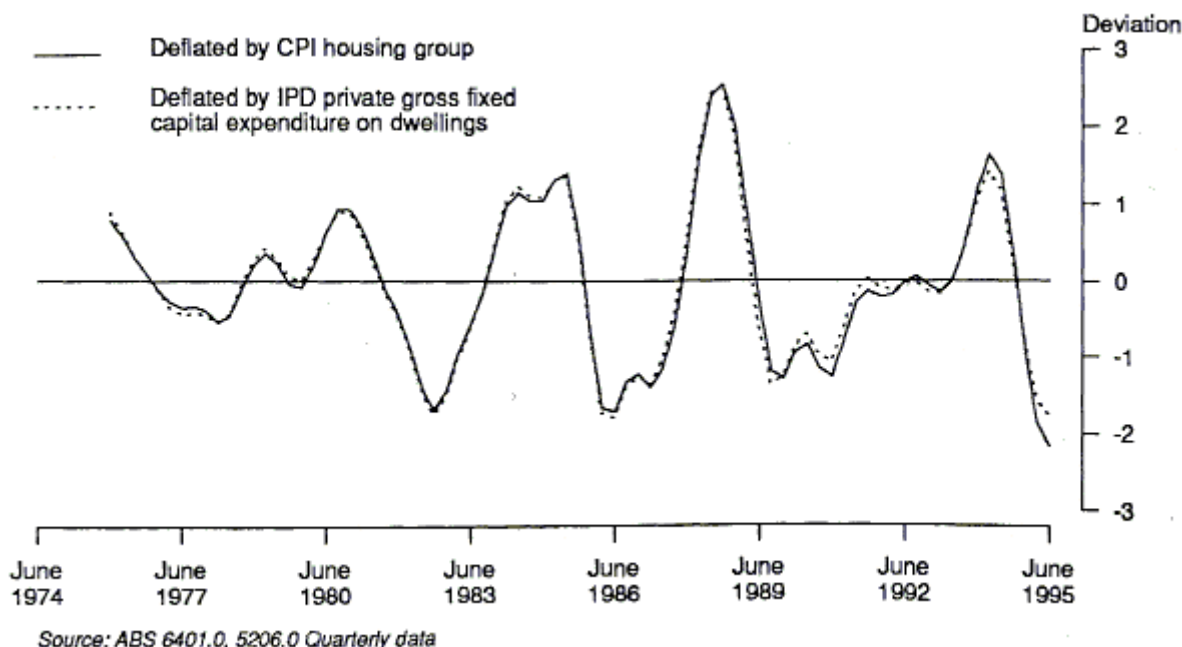
GRAPH 5: REAL SELECTED HOUSING FINANCE COMMITMENTS, SEASONALLY ADJUSTED AT AVERAGE 1989-90 PRICES, CHANGE FROM PREVIOUS QUARTER



CLI

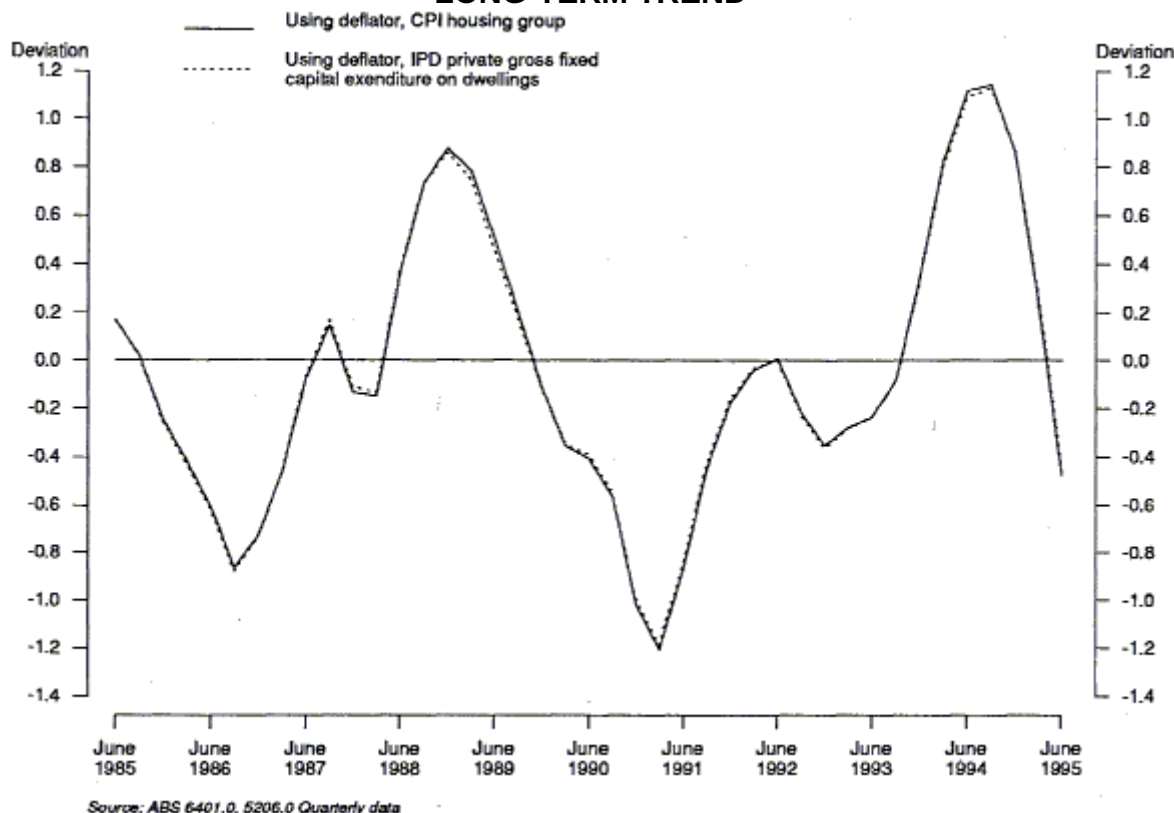
These differences, however, need not imply that the choice of a deflator for the housing finance component will have a marked effect on the CLI; it must be remembered that the CLI is essentially an aggregation of the "business cycle" elements of the components (the deviation of their short-term trends from their historical long-term trends). Graph 6 shows that, in terms of deviation from historical long-term trend, the two versions of constant price housing finance are very close to one another.

GRAPH 6: REAL SELECTED HOUSING FINANCE COMMITMENTS, DEVIATION FROM HISTORICAL LONG-TERM TREND, AT AVERAGE 1989-90 PRICES



Finally, Graph 7 shows two versions of the CLI: one using the present, CPI-based deflation method for the housing finance component and the other using the alternative IPD-based deflation method. The difference in the CLI paths is barely discernible. Thus, when assessed against the third (cyclical conformity) criterion, the existing and alternative deflation methods are equally good.

GRAPH 7: COMPOSITE LEADING INDICATOR (CLI), DEVIATION FROM HISTORICAL LONG-TERM TREND



FUTURE DEVELOPMENTS

The ABS will observe the predictive performance of the present and alternative housing finance

components during late 1995 and early 1996; the alternative construction of the housing finance component and other changes to the way the CLI is assembled may be introduced next year.

This feature article was contributed by Daniel O'Dea, ABS.

ENDNOTES

1. Estimates of secured housing finance commitments are contained in Housing Finance For Owner Occupation, Australia (ABS Cat. No. 5609.0). < Back
2. A lending commitment is a firm offer of housing finance; it either has been, or is normally expected to be, accepted by the borrower. < Back
3. From time to time the CPI is reviewed and new "weights" are introduced to reflect up-to-date expenditure patterns. The last review of weighting was in 1992 (see A Guide to the Consumer Price Index, cat. no. 6440.0) < Back
4. The real interest rate component of the CLI is derived by:
Subtracting the annual growth in the national accounts final domestic demand fixed-weighted price index (growth rate from the corresponding quarter the year before) from the quarterly average of the two year Treasury bond rate. (Information Paper, An Experimental Composite Leading Indicator of Australian Economic Activity, ABS June 1993, cat. no. 1347.0) < Back
5. An implicit price deflator (IPD) is an index obtained by dividing a current price value by its corresponding constant price value. When calculated from the major national accounting aggregates, such as gross national expenditure, IPDs relate to a broader range of goods and services in the economy than that represented by any of the individual retail and wholesale price indexes published by the ABS. < Back
6. National accounts estimates of private gross fixed capital expenditure on dwellings are based primarily on the value of work done during the period on new residential buildings and on alterations and additions to residential buildings. Both sets of data are collected in the ABS quarterly Building Activity Survey.

Constant price estimates are obtained by the price deflation method. A measure of the price component of the current price value is obtained and divided into the current price value to obtain the quantum component, or constant price value. New houses, and alterations and additions are deflated separately. In both cases current price values are deflated by an index of house construction prices. The price data used are from the CPI. For purposes of deflating these items, the price data are combined using variable quarterly weights which reflect current building activity in each State. The weights are based on ABS estimates of the value of work done. < Back
7. The December quarter Australian national accounts take a little longer to compile because at present the annual benchmark data are updated during that quarter. < Back
8. Mortgage interest charges have been included in the CPI housing group since the December quarter 1986. From the December quarter 1986 to the December quarter 1988, mortgage interest charges were accounted for using the simple revaluation method, from the March quarter 1989 they have been accounted for using the debt profile method. The debt profile method goes further than the simple revaluation method by recognising that mortgage interest charges paid by households depend on the age of mortgages (see Information Paper 1989, Treatment of Mortgage Interest Charges, cat. no. 6442.0). < Back

9. Mortgage interest charges reflect mortgage interest rates and the value of debt outstanding. Table 2 shows the timing of housing loan interest rate changes since the June 1989 peak rate of 17.0 per cent.

TABLE 2. NEW HOUSING LOANS TO INDIVIDUALS FOR OWNER OCCUPATION: TIMING OF INTEREST RATE CHANGES; JUNE 1989 TO JUNE 1995

Date		Rate (a)
1989	June	17.00
1990	April	16.50
	September	16.25
	October	16.00
	November	15.50
	December	15.00
1991	January	14.50
	May	14.00
	June	13.00
	October	12.50
	December	12.00
1992	February	11.00
	June	10.50
	August	10.00
1993	May	9.50
	September	8.75
1994	September	9.50
	November	9.55
	December	10.50

(a) Predominant rate on standard variable interest rate loans of large bank housing lenders. Source: Reserve Bank of Australia Bulletin, Monthly data. < [Back](#)

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Salou, Gerard and Cynthia Kim. 1993. An Experimental Composite Leading Indicator of the Australian Business Cycle. Australian Economic Indicators. Australian Bureau of Statistics (cat. no. 1350.0), May 1993.

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